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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,189	08/11/2006	Katsuhiko Ikeda	294888US0PCT	6071
22850	7590	10/13/2010		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER VANATTA, AMY B	
			ART UNIT 3765	PAPER NUMBER
			NOTIFICATION DATE 10/13/2010	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/589,189	<b>Applicant(s)</b> IKEDA ET AL.	
	<b>Examiner</b> Amy B. Vanatta	<b>Art Unit</b> 3765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16, 18-25 and 31-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-21, 31 and 32 is/are allowed.
- 6) ☒ Claim(s) 16, 22, 23, 25, 33 and 34 is/are rejected.
- 7) ☒ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06222010</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Ethridge (US 4,949,441).

Ethridge discloses an apparatus comprising a fluid treatment device 10 which forms an intermingling device as claimed, comprising a yarn channel having a flat rectangular section (see channel which extends through device 10 in Figs. 1-3, from inlet opening 11 to outlet opening 13, i.e. including duct 12 and chamber 35; col. 3, lines 59-64 and col. 4, lines 27-44). The yarn channel is capable of passing a plurality of small tows as claimed. The intermingling device includes a plurality of holes 36 which permit fluid (air) to exit from the chamber 35 (see col. 4, lines 40-44 and Figs. 2-3; also see col. 4, line 47 disclosing that the fluid is air). The holes 36 form “air jet holes” as claimed, since the air jets exit through the holes 36. A plurality of the air jet holes 36 are disposed within a predetermined interval along the long side direction of the flat rectangle (see Fig. 2-3), and the holes 36 open into the yarn channel as claimed (see Fig. 2). A groove extends along the lengthwise direction of the yarn channel (see groove which forms chamber 35) and opens into the yarn channel at a position where

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the plurality of strand material (small tows) are adjacent to each other; see Figs. 2 and

3. The groove which forms chamber 35 has a trapezoidal form as in claim 16; see Figs. 2-3.

3. Claims 33 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshimura et al (US 6,485,592).

Yoshimura et al disclose an apparatus comprising an intermingling device 21 comprising a yarn channel having a flat rectangular section (see Figs. 7-8) capable of passing a plurality of small tows (see fiber bundle 10a) as claimed. A plurality of air jet holes 22 are disposed within a predetermined interval along the long side direction of the flat rectangle (see Figs. 7-9), and the holes 22 open into the yarn channel as claimed (see Figs. 7-9 and col. 12, lines 42-58). Yoshimura discloses an apparatus comprising multiple such intermingling devices (see 65A and 65B in Fig. 12 and nozzles 65 in Fig. 13), a first one of which forms the claimed first intermingling device of claim 34, and a second one of which forms the claimed second intermingling device of claim 34. Both of these intermingling devices have a yarn channel having a flat rectangular section and air holes as in claims 33 and 34 (see Figs. 7-9, Figs. 12-13, and col. 19, lines 19-27).

The nozzle bottom 21b comprises a groove as in claims 33 and 34. See Fig. 7, showing a rectangular shaped groove in the upper portion of the nozzle bottom 21b, with fiber bundle 11a positioned in the groove. The groove extends along the lengthwise direction of the yarn channel and opens into the yarn channel at a position

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where the plurality of small tows (11a, 10a) are adjacent each other; see Fig. 7. The groove is on the same face (i.e. see upper portion of the nozzle bottom 21b) as the air jet holes connected to the yarn channel (see air holes 22 in the groove on the upper portion of the nozzle bottom 21b; Fig. 7), as in claims 33 and 34.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 22, 23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ethridge (US 4,949,441).

Ethridge discloses an apparatus as claimed, comprising an intermingling device 10 comprising a yarn channel having a flat rectangular section (see Figs. 1-3) capable of passing a plurality of small tows as claimed. A plurality of air jet holes 36 are disposed within a predetermined interval along the long side direction of the flat rectangle and open into the yarn channel as claimed. Regarding claim 22, Ethridge does not disclose the diameter of the holes. It is within the ordinary skill in the art however to determine the optimal diameter for the holes through routine experimentation, based upon the air pressure, the spacing of the holes, the dimensions of the yarn channel and treatment chamber, and similar considerations. Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention

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was made to provide the holes as having a diameter within the range of 0.3 mm - 1.2 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233. As to lines 2-6 of claim 22, the recitations pertaining to the ratio nD/L is drawn to the properties of the tow (e.g. fineness of the tow and number of tows) and does not further limit the structure of the claimed apparatus.

Regarding claim 23, the air jet holes 36 of Ethridge are disposed with an even pitch, as claimed (see Figs. 2-3) . The measurement of the pitch is not disclosed by Ethridge, however it is within the ordinary skill in the art however to determine the optimal pitch for the holes through routine experimentation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the holes as disposed with a pitch within the range of 0.8 mm - 1.6 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Ethridge also does not disclose the length of the yarn channel, as also recited in claim 23, however it would have been obvious to one having ordinary skill in the art at the time the invention was made to design the yarn channel to have a length of 10 - 40 mm, since, as noted above, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. Thus, to design the holes of Ethridge to have the claimed pitch and diameter and to design the yarn channel to have the claimed length is within the ordinary skill in the art.

Regarding claim 25, the groove has a trapezoidal sectional shape as seen in Figs. 2-3. The dimensions of the groove are not disclosed by Ethridge, however as noted above, it is within the routine skill in the art to determine the optimal dimensions for the elements of the treatment device. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the groove as having the dimension as recited in claim 25, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

### ***Response to Arguments***

6. Applicant's arguments filed 7/26/10 have been fully considered but they are not persuasive with respect to claims 33 and 34. Applicant argues that "Yoshimura does not describe any apparatus including an intermingling device having a groove on the same face of a yarn channel which face also includes air jet holes". The examiner contends that Yoshimura does disclose this structure. See Figs. 7-8, showing a rectangular groove on the upper portion of the nozzle bottom 21b, with fiber bundle 11a positioned in the groove. The face which has the groove (i.e. upper portion of nozzle bottom 21b) also has air jet holes 22 (see holes 22 on upper portion of nozzle bottom 21b). Thus, the claimed structure is shown by Yoshimura.

7. Applicant's arguments with respect to claims 16, 22, 23, and 25 have been considered but are moot in view of the new ground(s) of rejection.

***Allowable Subject Matter***

8. Claims 18-21, 31, and 32 are allowed.
9. Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.



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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy B. Vanatta whose telephone number is 571-272-4995. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Welch can be reached on 571-272-4996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Amy B Vanatta/  
Primary Examiner  
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